



The #1 Internet Source Of Audio, Video and Speaker Building Components, For Home, Office, Mobile And Prosound

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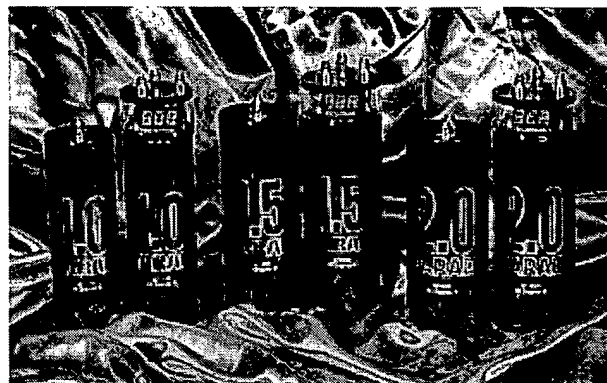
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Site Last Updated September 23, 200

Resources

Get the power and performance you never dreamed possible from your amplifiers!

Stiffening capacitors can help your amplifiers deliver up to 50% more output on those demanding peak bass notes. Most automotive alternator/battery systems simply lack the ability to produce large amounts of instantaneous power. This is exactly the type of power that car audio amplifiers crave. Adding a stiffening capacitor to your system can add tremendous bass punch and improve transient response.



Stiffening capacitors FAQ's

What is a stiffening capacitor?

Computer grade power caps (also known as stiffening capacitors) store energy and then very quickly release it on demand to your power amplifier(s). The term stiffening capacitor as a generic term refers to any large capacitor (100,000 Microfarad and larger) placed in parallel with an amplifier and battery.

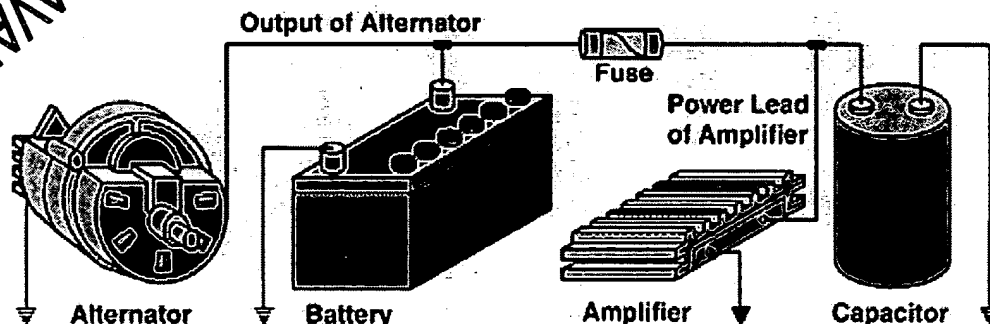
How does it work?

A stiffening capacitor charges like a battery. But unlike a battery the stiffening capacitor is designed to quickly release power on demand. This quick burst of power aids your amplifier in producing deep bass notes when it needs it. In between deep bass notes your battery and alternator re-charge the cap allowing it to be ready for the next deep bass note. This battery voltage assistance reduces voltage induced amplifier clipping, increases transient response, increases bass punch, and increases amplifier life.

Where should my capacitor be mounted?

Stiffening capacitors should be mounted as close to the amplifier as possible, as is shown in the diagram below.

Capacitor Wiring Diagram



One of the other benefits of stiffening capacitors is the ability to reduce line loss. Line loss is created by the power cable itself. Long runs of power cable associated with mounting amplifiers in automotive trunks creates line loss, especially during deep bass notes. Stiffening capacitors help maintain appropriate system voltages at the amplifier.

What size capacitor do I need?

As a general rule we recommend 100,000 Microfarad (.1 Farad) per 100 watts of amplifier power, or 1 Farad per 1000 Watts. Use the simple chart below to determine what size capacitor you need.

Total Amplifier Power	Capacitor needed	Recommended Product
Up To 500 Watts	.50 Farad	268-400
500-1000 Watts	1.0 Farad	268-450
1000-1500 Watts	1.5 Farad	268-455
2000 Watts	2 Farad	268-460

***Can I use multiple caps?**

Yes, Capacitors add in value when wired in parallel. Example: Two 1 Farad capacitors wired in parallel sum to 2 Farad. This is the perfect size for a competition system with up to 2000 Watts of trunk mounted amplifiers.

What voltage capacitor do I need?

Automotive battery charging systems typically vary between as low as 12VDC up to as high as 14.5VDC with the average alternator output at 13.8VDC. Generally speaking stiffening capacitors these days are rated at 20VDC average and 24VDC surge. We do not recommend using capacitors rated below 16VDC but higher is always better.

Do stiffening capacitors require special handling?

Handle stiffening capacitors as you would a charged battery. The main thing you need to worry about is initial installation charging and discharging. Most capacitors are supplied with a charging/discharging resistor or lamp. Capacitors draw a very large amount of current during installation. DO NOT attempt to connect 12VDC directly to the terminals or arcing and permanent terminal damage will occur. Utilize a charging resistor or lamp in series with the cap and follow the instructions supplied with your capacitor to slowly energize the capacitor and eliminate arcing. NEVER short the leads of a stiffening capacitor. When un-installing a capacitor remove the source voltage then use the same resistor or lamp to slowly de-energize it.

Anything else I should know?

Yes, ALWAYS install an appropriate fuse or circuit breaker between your amplifier/capacitor in the trunk and your battery power source.

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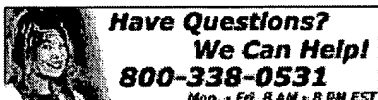
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Resources

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HI-WAVE SHW10 1.0 FARAD POWER CAPACITOR


#268-402

Our Price: \$89.80 EA (1-5)

Quantity Price: \$83.55 EA (6+)

 QUANTITY:
Add to Basket

IN STOCK? Yes

MFG/BRAND: Parts Express

[See more Electronic Parts](#)

Most automotive alternator/battery power supply systems simply lack the capability to produce large amounts of instantaneous power. This is exactly the type of power a car audio amplifier craves! These computer grade power stiffening capacitors work by storing energy and then very quickly releasing this energy, on demand, to your power amplifier(s). The result is tremendous bass punch and dramatically improved transient response. All models feature a brushed chrome finish and 24kt gold plated terminals and include two mounting brackets with hardware, hex wrench, charging resistor and owner's manual with installation instructions. One year manufacturer warranty. Specifications: * 20 VDC/24 VDC surge * ESR: < 1.8 milliohms * Tolerance: +/-10% * Temperature range: -40° C to +95° C. We recommend at least 1.0 Farad of capacitance per 1,000 watts of continuous amplifier output power. Capacitors can be wired in parallel to increase value.

 How they work
[Manual \(PDF 80K\)](#)

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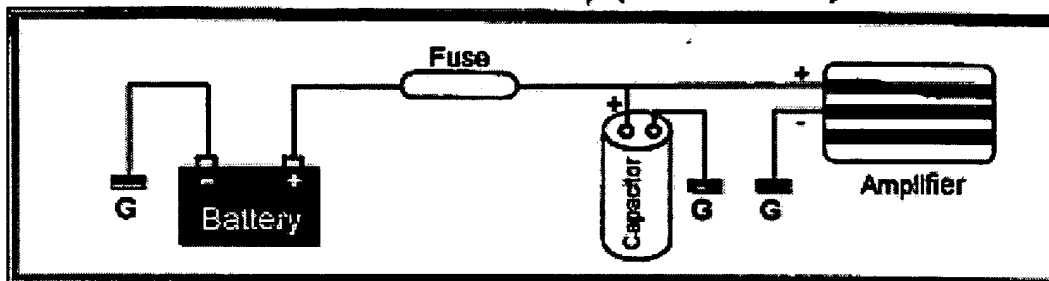
Installation/Mounting

The power capacitor should be mounted as close to the amplifier as possible keeping the wire runs short to reduce voltage losses in the cables. Use the mounting brackets supplied to secure the capacitor as close to the amplifier as possible.

The capacitor may be mounted in any position; however, care should be taken to ensure the vent hole on the top is unobstructed at all times. This vent will act as a relief if the electrical polarity becomes crossed. Warning: Crossing the polarity on a non-digital display capacitor may permanently damage the capacitor.

Power Wiring Considerations

Most installations are simple and straightforward and should not be difficult. When installing the capacitor, we recommend using the same gauge wire as that of the power connection to the amplifier. Ground the capacitor to the nearest chassis ground using the same gauge wire as that used for the power connection. It is strongly recommended the capacitor be fused at the battery. The fuse value should be the same as that of the power connection to the amplifier. This fuse should be installed 8" from the battery. (See illustration)



If the capacitor is to be used in a multi-amp system, a power distribution block may be used between the capacitor and the amplifiers. It should be wired using the same gauge wire as that of the main system.

The positive side of the capacitor will be connected to the positive side of the amplifier's power connection (B+).

CAUTION: Do Not over-tighten screws. Stripped or broken terminals are NOT covered by warranty.

Charging

The supplied resistor is used to initially charge the capacitors. The charging process is accomplished by connecting the resistor in series between the positive side of the battery and the positive terminal of the capacitor. It is very important that polarity be observed and maintained during this process to eliminate the possibility of damaging the capacitor, the battery, or other associated equipment. Charging is complete when the voltage at the capacitor reaches that of the vehicle's battery. This process will take only a matter of seconds to complete.

Charging Verification

A voltmeter should be used to verify that the capacitor is fully charged. When the charging process is complete, the resistor may be disconnected and stored for later use.

Welcome to Avondale Audio

The world's foremost
Engineering site for
Audio Conversions
Check back regularly

Last updated 19 September 2002

*You won't find this level of service at these prices anywhere
else - GUARANTEED...!!*

Please accept my apologies for the long download time - this is a temporary site - A new multi - page
site is under construction

it's worth the wait - and that's my promise.....

****"I'd never heard my Naim system until Avondale Audio worked their magic on it" TR Sunderland*

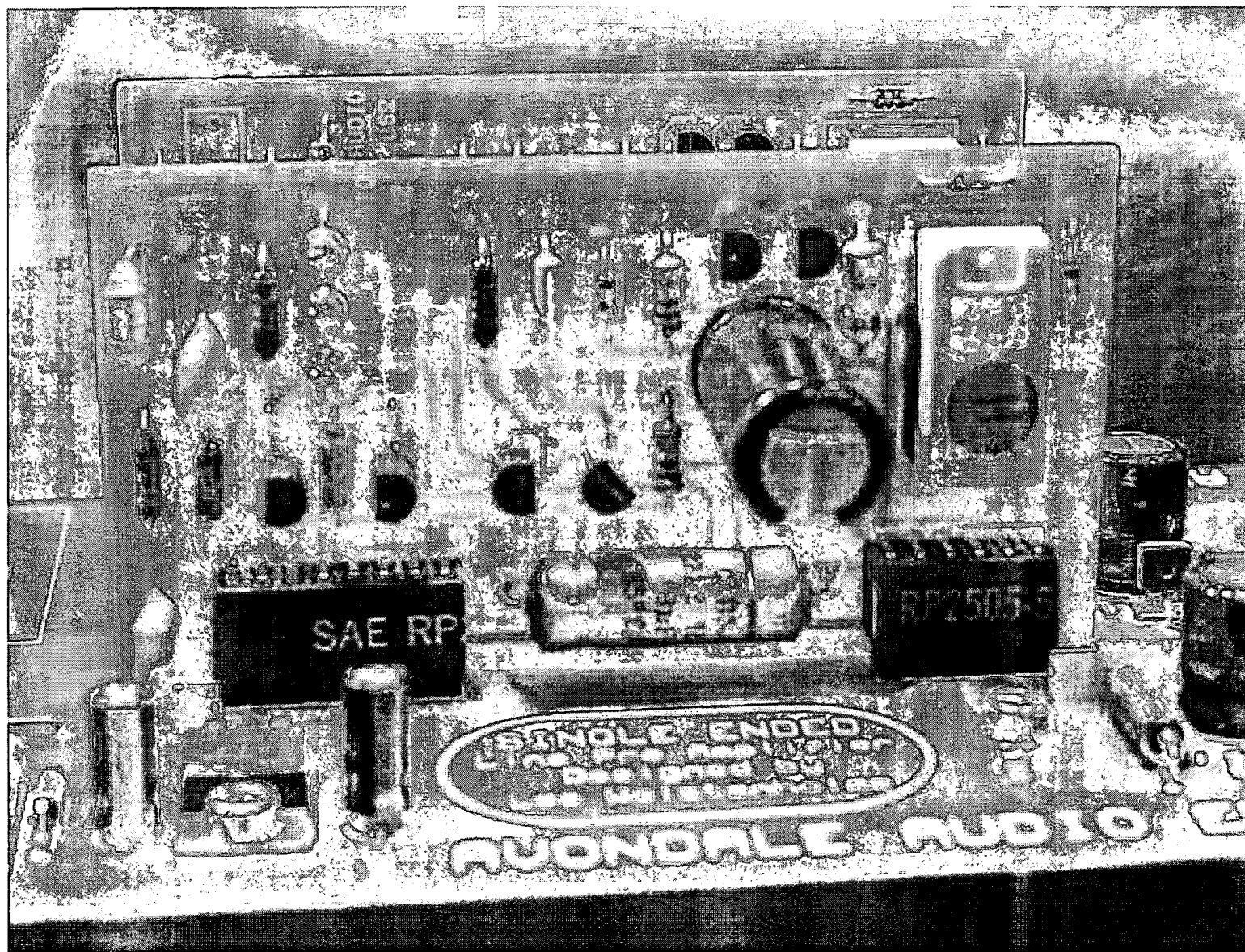
***** Brand New Product *****

Graduation One

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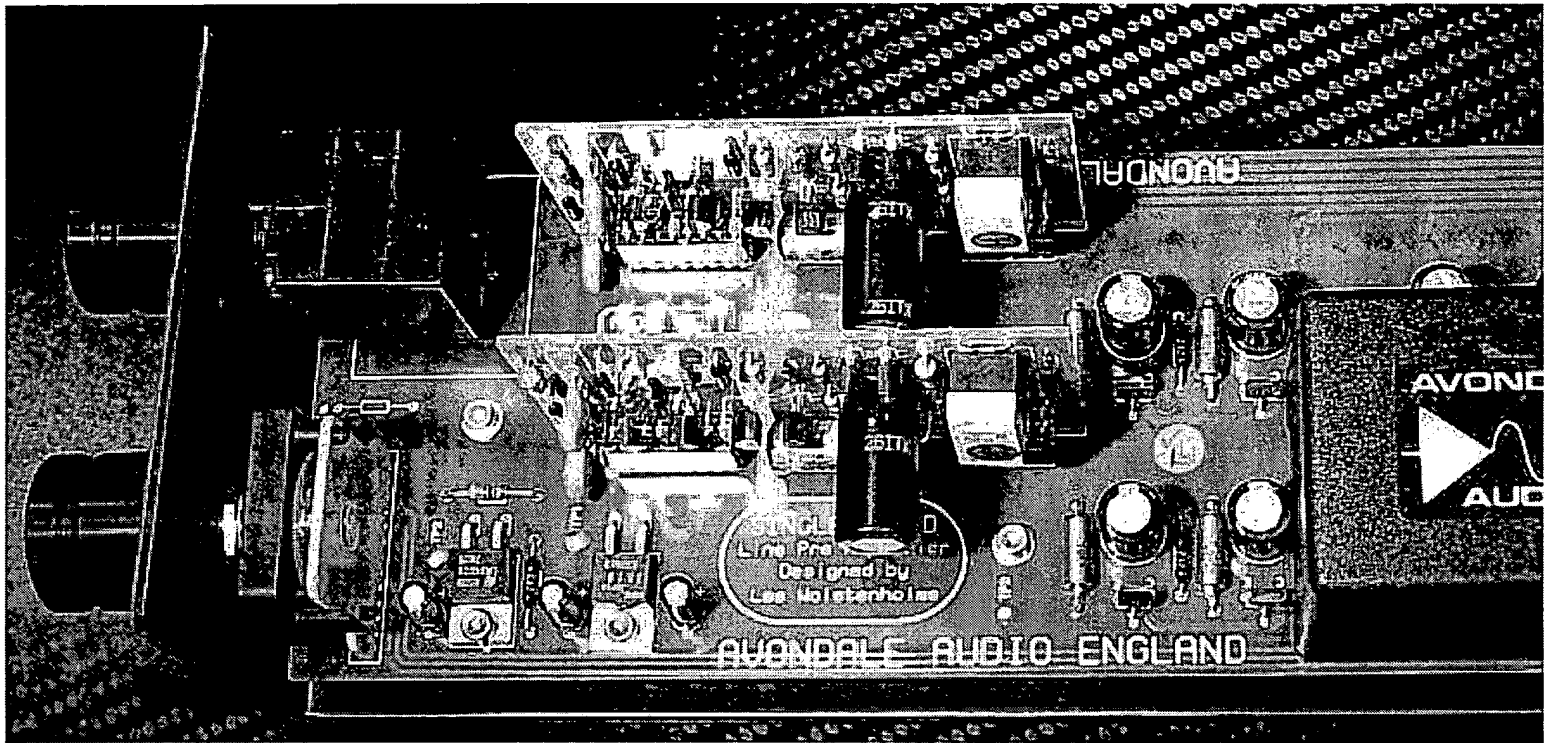
A Line Level Transistor Pre-Amplifier

designed and built to compete with the very best from Audio Research, Levinson, Krell etc



Beginning again with first principles, the Graduation One uses single ended technology with some very sophisticated circuits, components and PCB track layout. Signal paths are as short as it is practical to make them.

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Zero Feedback topology - none of the forward, grainy sound normally associated with transistor pre-amps. This pre-amplifier even takes on some highly regarded valve products and gives them a run for the money. The Graduation One is probably the best value for money high end component available today. Developed for enthusiasts, by enthusiasts.

A Power Supply system unique to Avondale Audio ensures fast leading edges without overshoot.

**** " I really like the way it gives you the whole picture, the Graduation One is better than the NAC82 in every respect and is certainly a true audio bargain..." SC Leicester**

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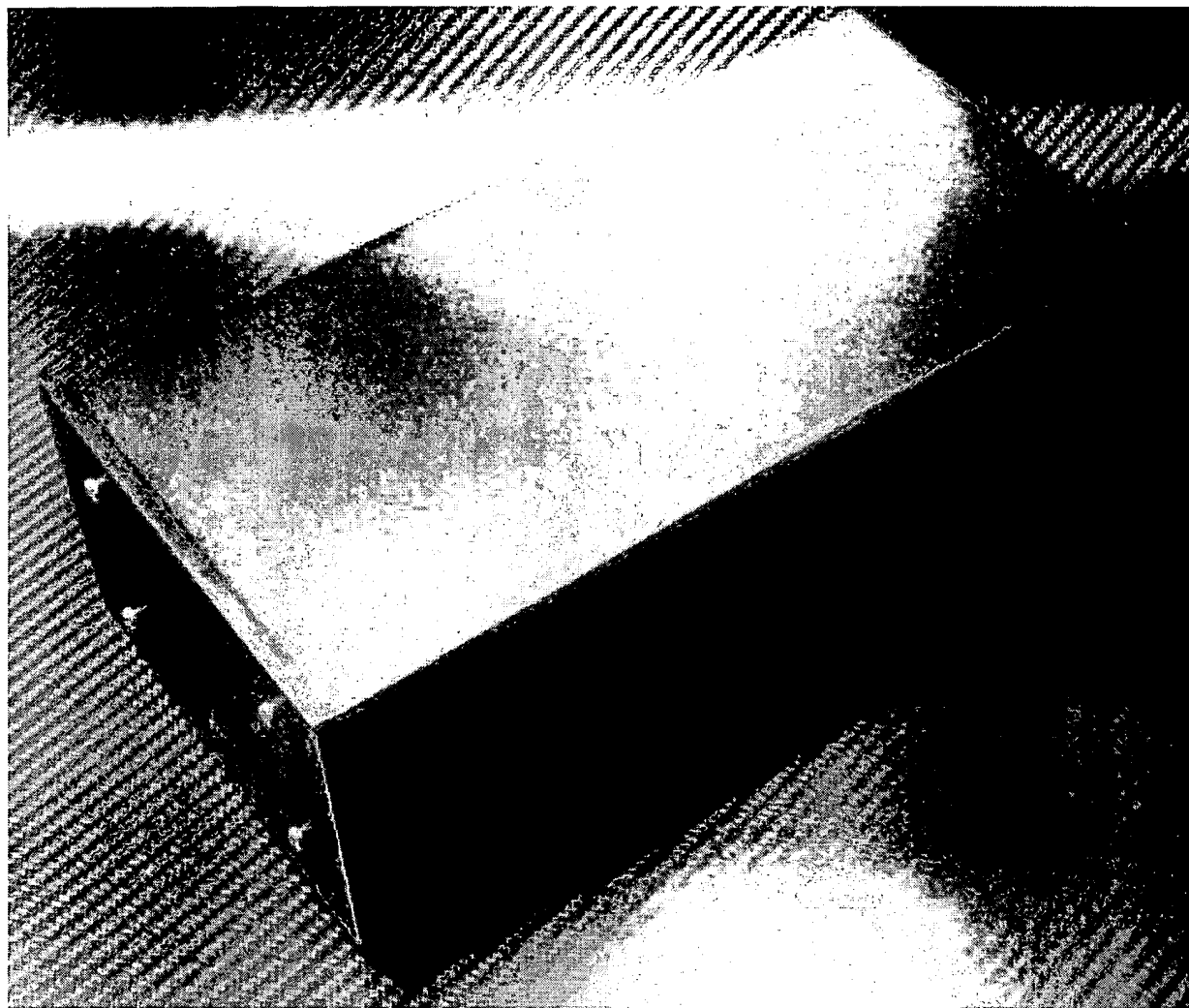


Hermetically sealed reed relays take care of the signal switching so minimising crosstalk between inputs and channels

Price of the Graduation One Pre-Amplifier including matching dedicated power supply £1295

Try against any regarded pre-amp, inc. NAC52 + S-Cap, for a surprise - plus, it's available on sale or return as with all our range

APX2 - *Brilliant Performance* from a
New 'State of the Art' Power Unit
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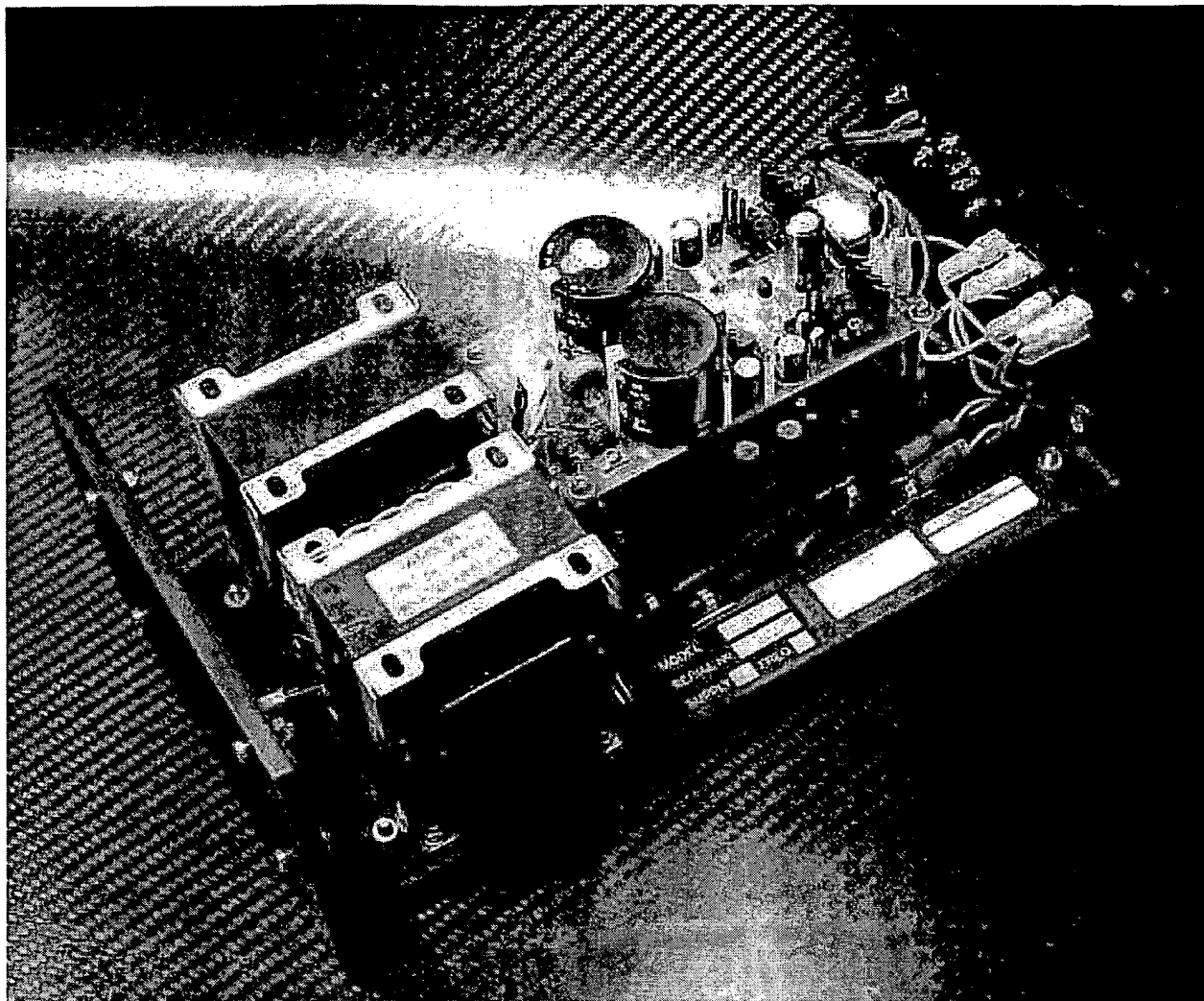


The New **APX2** Power Supply for Naim Pre-Amplifiers/CD Players

CNC machined Aluminium 3mm thick chassis - black anodised

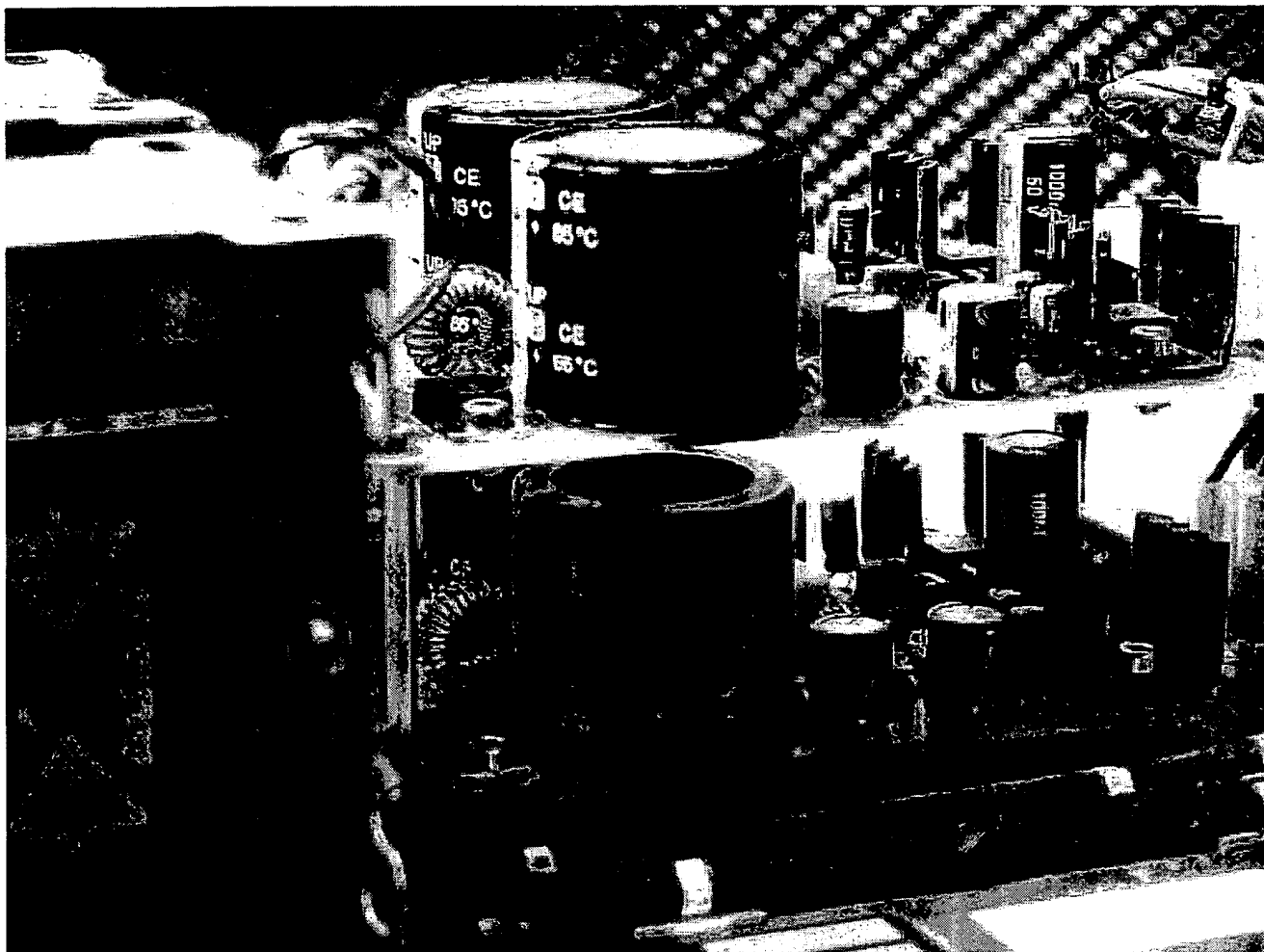
Case finished in Black Texture Coat with a black anodised, 6mm solid aluminium, anodised front panel

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Note the twin *Audio Grade* transformers - completely silent in operation, no *grunting* from these babies..... We prefer to fit a separate transformer rectifier and capacitors for each channel of power rather than sharing one transformer between regulators.....this means a more open sound with noticeably less IMD.

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Twin banks of 6800uF Capacitors are used for each section with RF (Radio Frequency) suppression.....Plus, our system of two stage pre-regulation means a quieter background and added decoupling ensures ultra fast transient delivery for superb leading edge detail and rock solid soundstage.

With the exception of the transformers, only non - ferrous materials are used in APX2 construction. The APX2 test results indicate technical and sonic performance superior to either the Hi-Cap and the SuperCap.

Special Introductory Offer - June/July Only £385 inc. Delivery in UK.

(For comparison, check out the price of a Hi-Cap)...!!

Offered on a NO QUIBBLE Sale or Return basis (Regret UK Only)

YOUR chance to prove to yourself that the APX2 performs as good as we say it does WITHOUT RISK

PLEASE REMEMBER: The APX2 is "Plug and Play" & does NOT require any alteration to the pre-amplifier

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Will work with the Naim Snaic however - our performance interconnect leads to get the very best out of this supply, are available for a modest extra charge. HiDEF @ £87 - HiRES @ £134, details on request.

**** Can I audition an APX2..?? Simply click here****

Credit Card Order ? See bottom of page

Mains Voltage :

All of our mains powered products may be specified for any mains voltage at no extra charge

The World Famous Avondale Modification Service

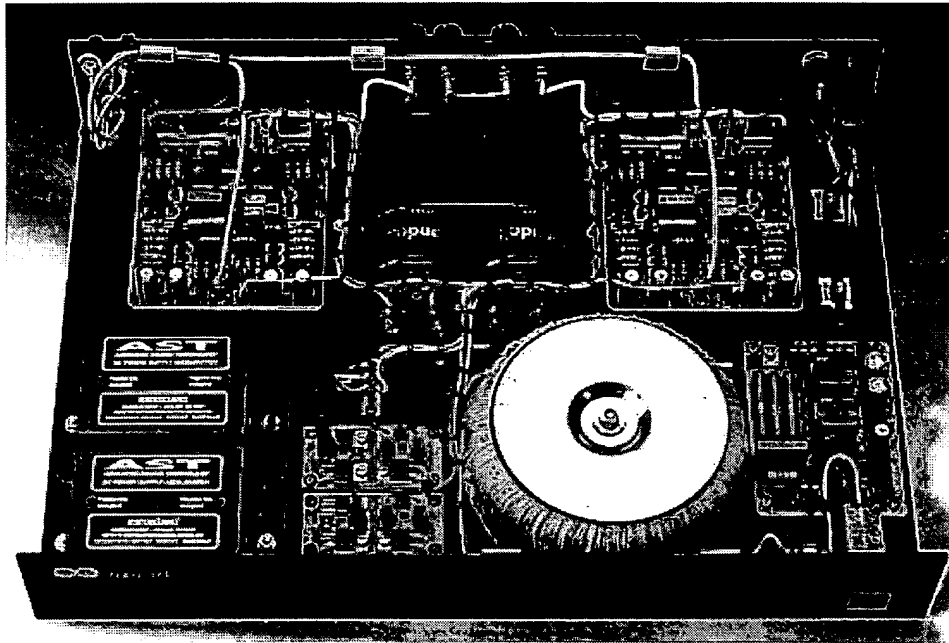
We have over 20 years experience in servicing & upgrading High End Equipment

We make more kit make more music than anyone..!!

Proven, cost effective modifications to Naim Equipment from the NAP120 to NAP135s and from the NAC12 through to the NAC52. Check out our fabulous monoblock conversion of the NAP110 for less than £250.

Our workshop facilities are always at your service

We are able to carry out servicing of Naim equipment - mostly on a "while you wait" basis



A Full "Battle Rigged" NAP160/250 - a 90WPC power house ready to deliver.....

Recapping:

Example 1: NAP250 - NAP135 recapping with superior grade electrolytics, voltage and current trips checked and reset to the manufacturers precise specifications. The whole amplifier is visually and electrically checked and subjected to a bench test when a certificate of service is issued. The procedure normally takes two hours from arrival Cost: £84.00

Example 2: HiCap recapping with twin 22.000uF Audio Grade Capacitors + new decoupling tantalums. Visual and electrical test performed then subjected to a bench analysis. Certificate of service issued. Cost: £64.00

Case Refurbishing:

Your elderly (or not so elderly) Naim may have suffered the ravages of time. The original finish is difficult if not impossible to duplicate with authenticity. We offer a custom service where your case sleeve is refurbished to better than new standard and refinished in a superior grade of hard wearing texture powder coat (check out the first APX picture). Included is a new set of hard plastic feet to complete the conversion to a pristine appearance.

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We can sometimes offer an exchange service and thus avoid any wait, please check with us before sending yours.

Prices are: Half width sleeve: £28.00 - Full width sleeve: £47.00

Spare Parts:

We carry extensive stocks of spare parts and can usually repair or refurbish older Naim equipment at prices well below those charged elsewhere. Upgrades are our speciality and these are carried out by skilled technicians under carefully controlled conditions. Like more info.?? - please request our Mods.doc file in Microsoft Word format size 98K.

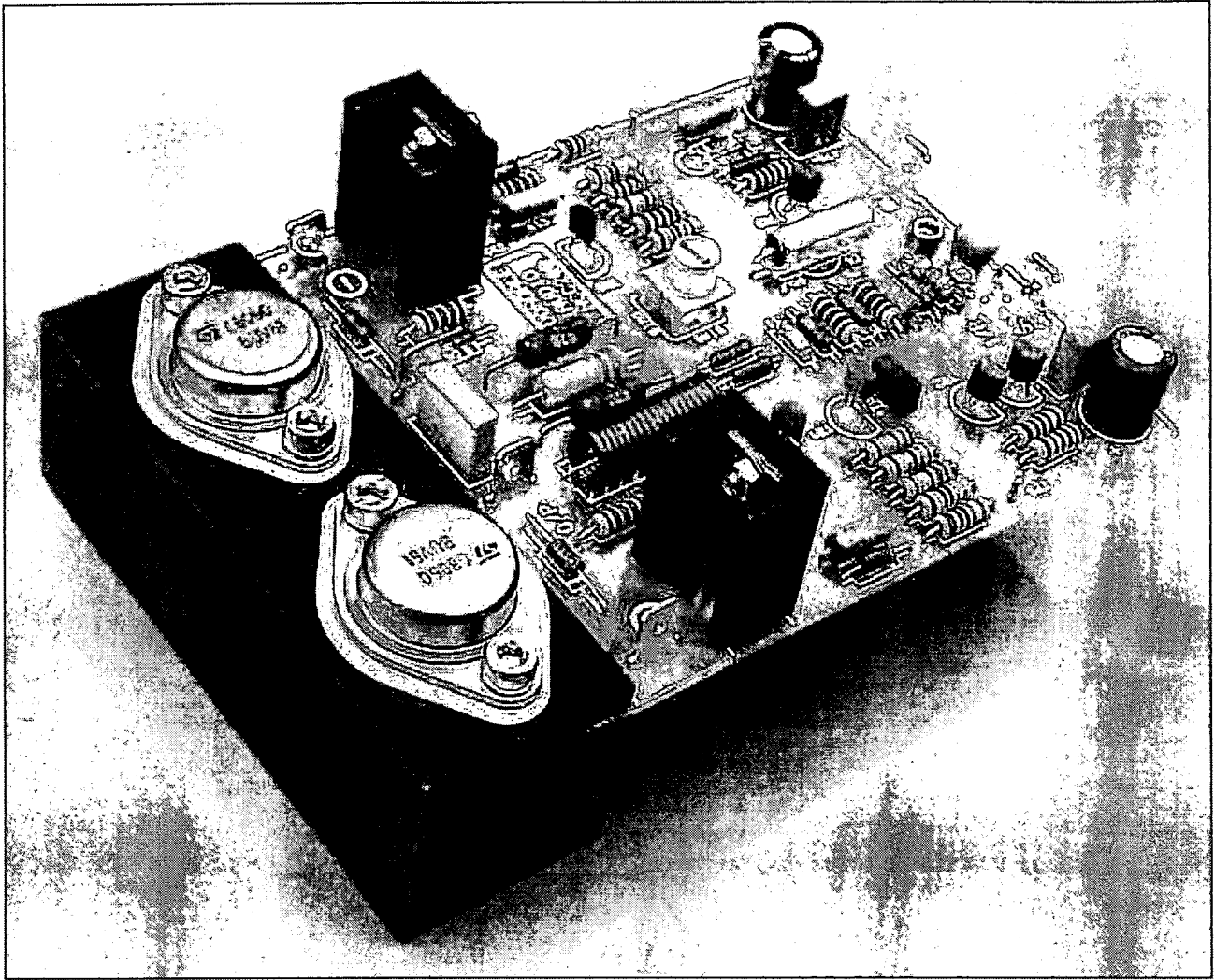
Hot News - Naim CD3 Players:

Our programme of modifications to this superb player is now complete. Consisting of a substantial rebuild of the digital circuits and the inclusion of the Avondale filters. The audio circuits are rebuilt with LT1028 plus OPA627 chips being installed. A custom designed external regulated power supply is added along with on board regulator changes internally. The disc transport is modified to improve dynamic stability and a digital output BNC is installed for those who wish to use an external DAC

When so converted, the CD3 takes on some of the best in the world at any cost (including the CDS2).

Price of conversion including custom power supply: £885.00

****"What a sparkling improvement to my Naims, even my wife enjoys the music now" Dr.AL Manchester*



NCC200 Module - The original RCA circuit .."well sorted"

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Using sophisticated techniques such as computer optimised signal paths and built using the highest specification components (eg. 1 Watt resistors throughout plus Welwyn RC55 resistors in the signal path) with no ferrous materials. These modules are free of the constraints found in the Naim amplifiers: The NCC200 drives ANY cables with no current limiting, less phase shift yet remains perfect stable. With suitable heatsinking, the NCC200 will deliver 100 Watts into 8 Ohms with a THD figure better than 0.01% (10W @ 1KHz) and a power bandwidth in excess of 25KHz

Sonically, bass performance is tuneful and deep - treble is free of the glare present in standard amplifiers. Noise levels are an order of magnitude lower meaning better fine detail retrieval

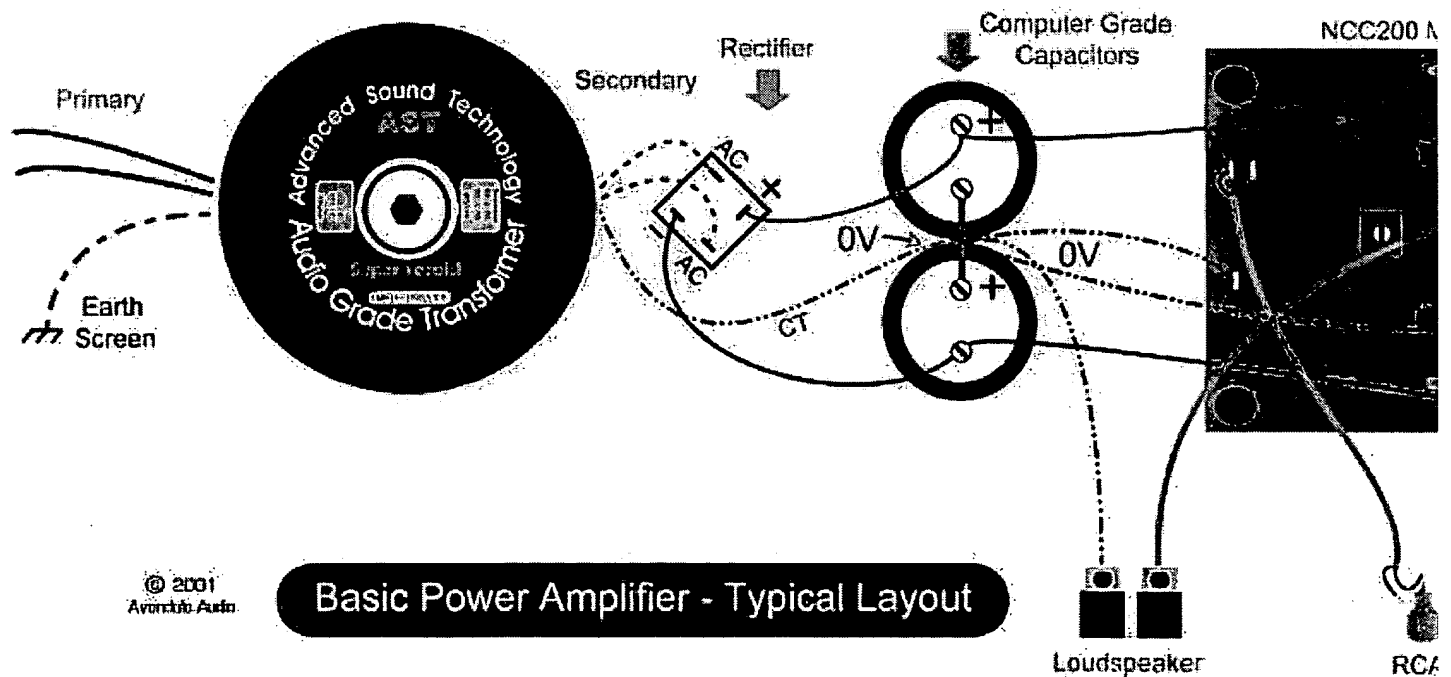
Setup simply requires a digital multimeter and we even provide that FREE of CHARGE with each pair of ready built and tested modules

Using modules, YOU can construct a world class 2 channel power amp to be proud of in an evening for a surprisingly small amount with absolutely NO SOLDERING...!!

You may be completely confident in that we operate a 'get you going' service in case of hiccups

BUILD YOUR OWN AMP & AMAZE YOUR FRIENDS :-) YOUR SUCCESS is GUARANTEED

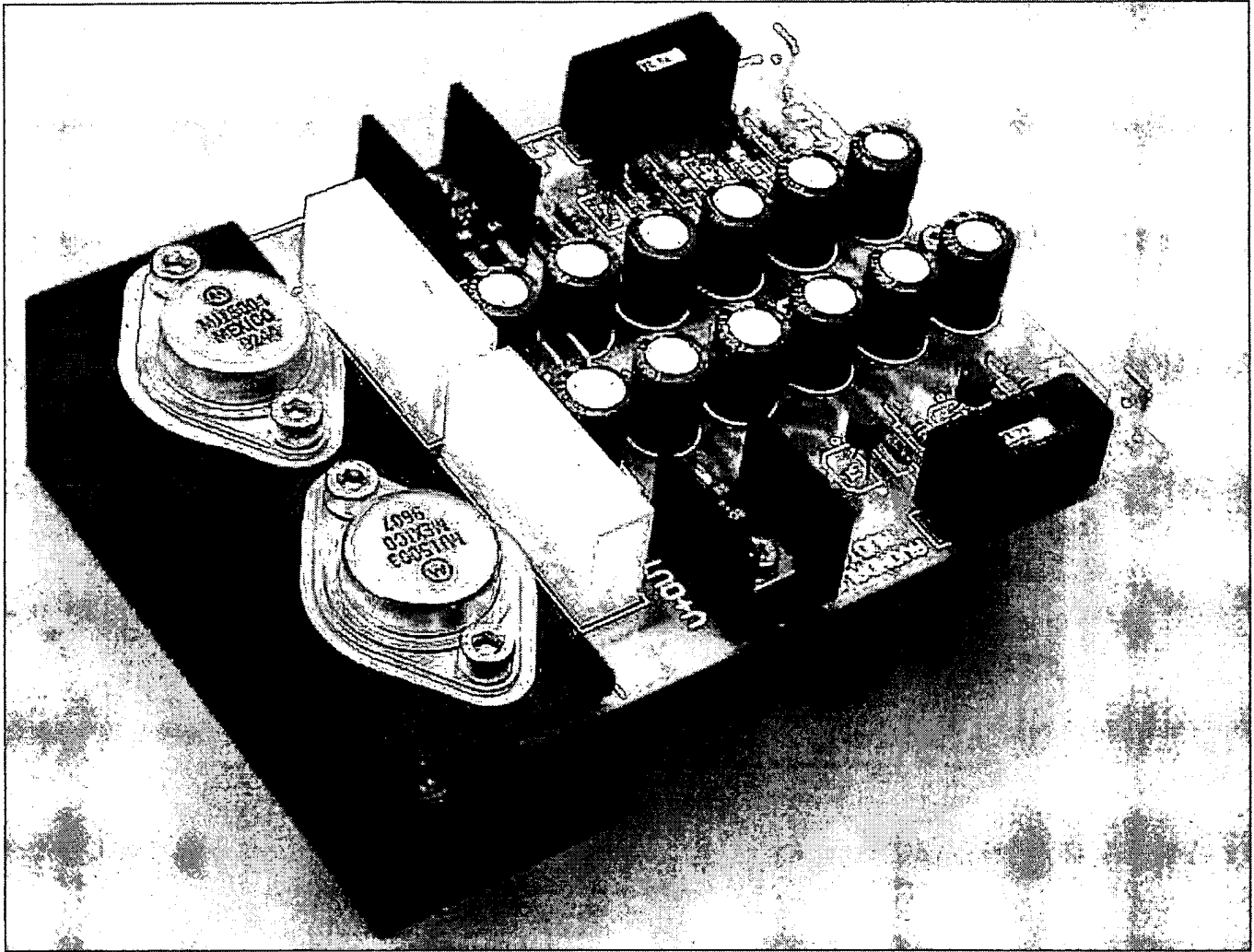
It's as easy as this :-



****Is it really this easy.?? Yes - the hard work's done for you****

**** "..... it communicates. In the past I have been wasting my time listening for things when instead they should have been making themselves heard" - RD Lancs**

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The VBE Power Supply Regulator Module - Creative Audio Engineering at it's best

ZERO FEEDBACK so no loss of timing and no undesirable phase shifts.

**Clean power from DC- 200KHz for a vibrant response. Suitable for power amplifiers
up to 100W**

**Built entirely from non - magnetic materials, connections by 20Amp rated 'push on'
terminals**

AGAIN - NO SOLDERING

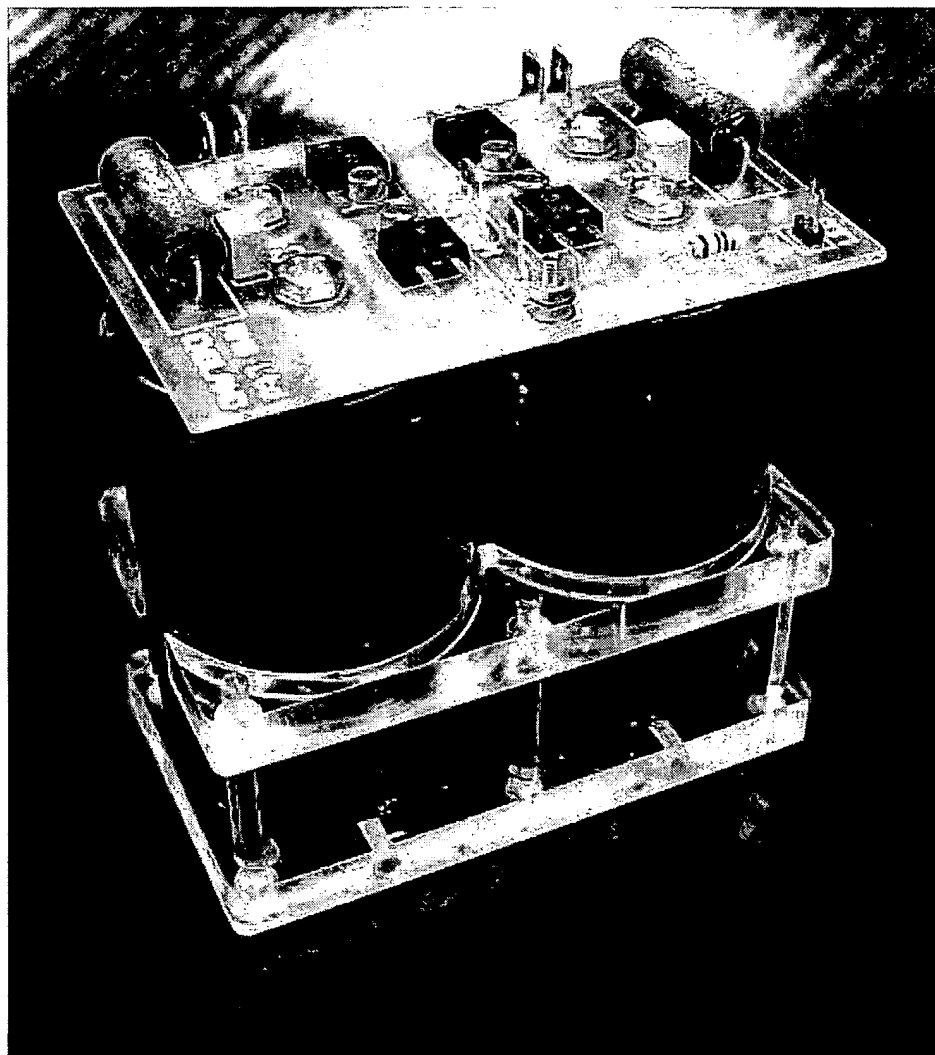
Price: Built and Tested £69.00

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****What will it cost me to build my own amplifier.?? click here****

****....I still enjoy my Avondale pre-amp every day of the week and thats been over 15 years now" - TP Coventry*



M-Cap - Main Capacitor assembly for Power Amplifiers

Choice of 20Amp Fast Recovery or Schottky diodes, all 'push on' terminals.

Anti Vibration, heat resistant, non - ferrous capacitor mounting designed by us.

**Your choice of capacitor size and manufacturer: 15000uF or 22000uF -
BC.Components..Aerovox..Kendeil**

Polypropylene bypass included and even has the LED ballast resistor on board.

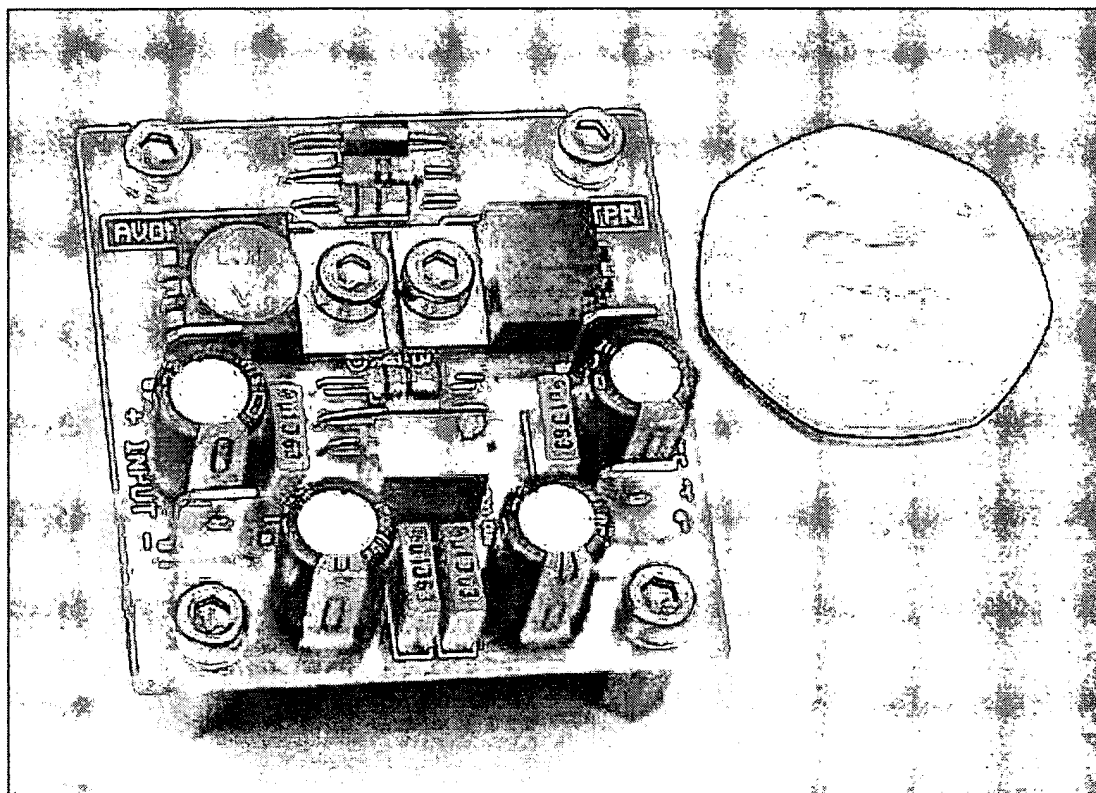
In short, a fully sorted, hassle free, drop in assembly (stand up or lie flat)

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At the risk of being repetitive - NO SOLDERING

Typical Price with 2 x 15000uF computer grade caps -£94.00 complete

****".....plus, the stunning improvements you made over ten years ago, still give me great pleasure today". BC London*



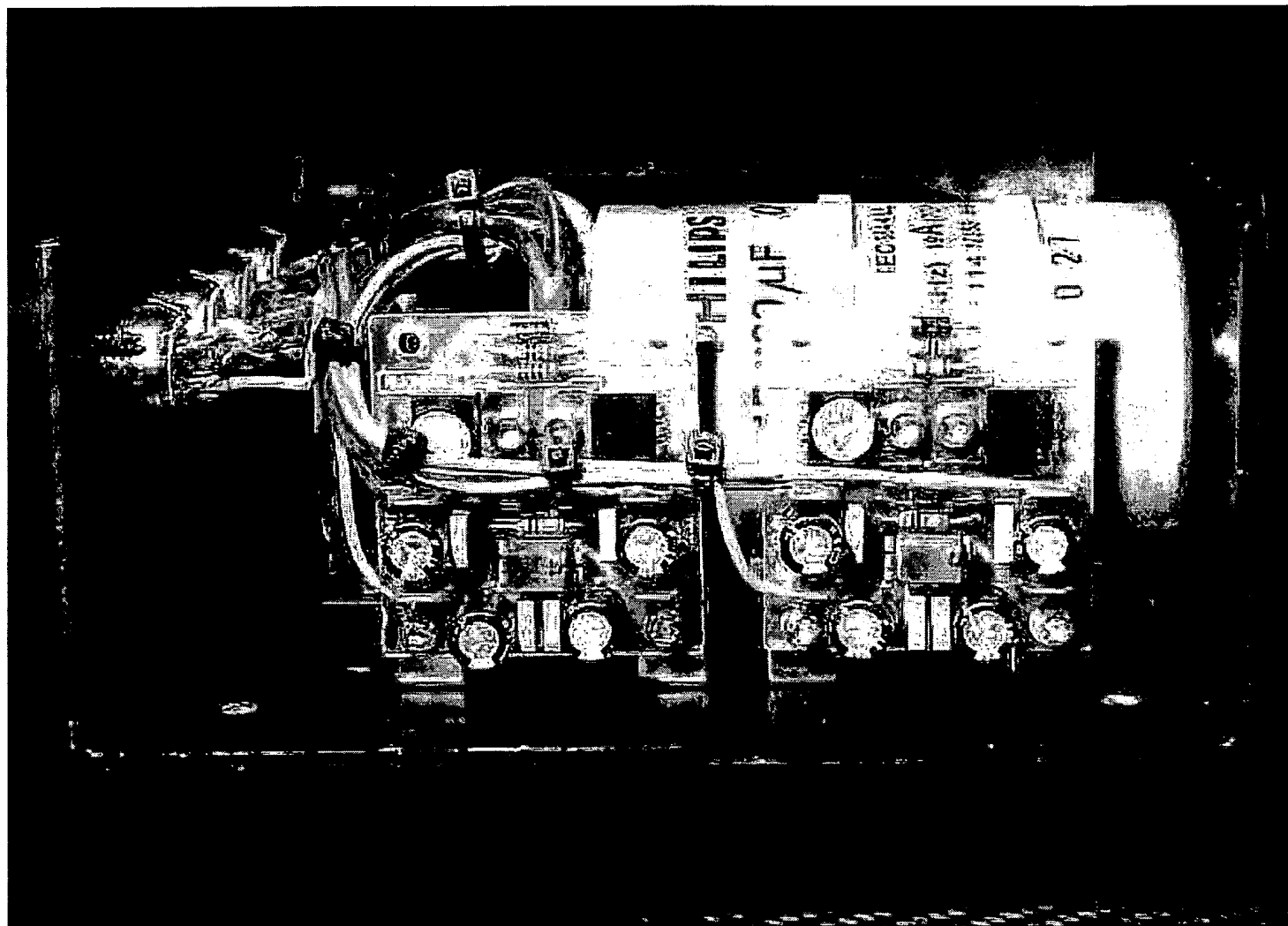
317 TPR - Tracking Pre-Regulator - a 20 minute upgrade for the SNAPS Power Supply

Fitted with a choice of twin LT317T or LT1086 regulators and non - magnetic stainless steel fixings throughout, this compact module proves to be a sonic match for the Hi-Cap or even the SuperCap

Takes the humble SNAPS into Hi-Cap territory and beyond -all WITHOUT SOLDERING

Price: Built and Tested £39.00 - Bare Silk Screened PCB + Diagram: £6.20

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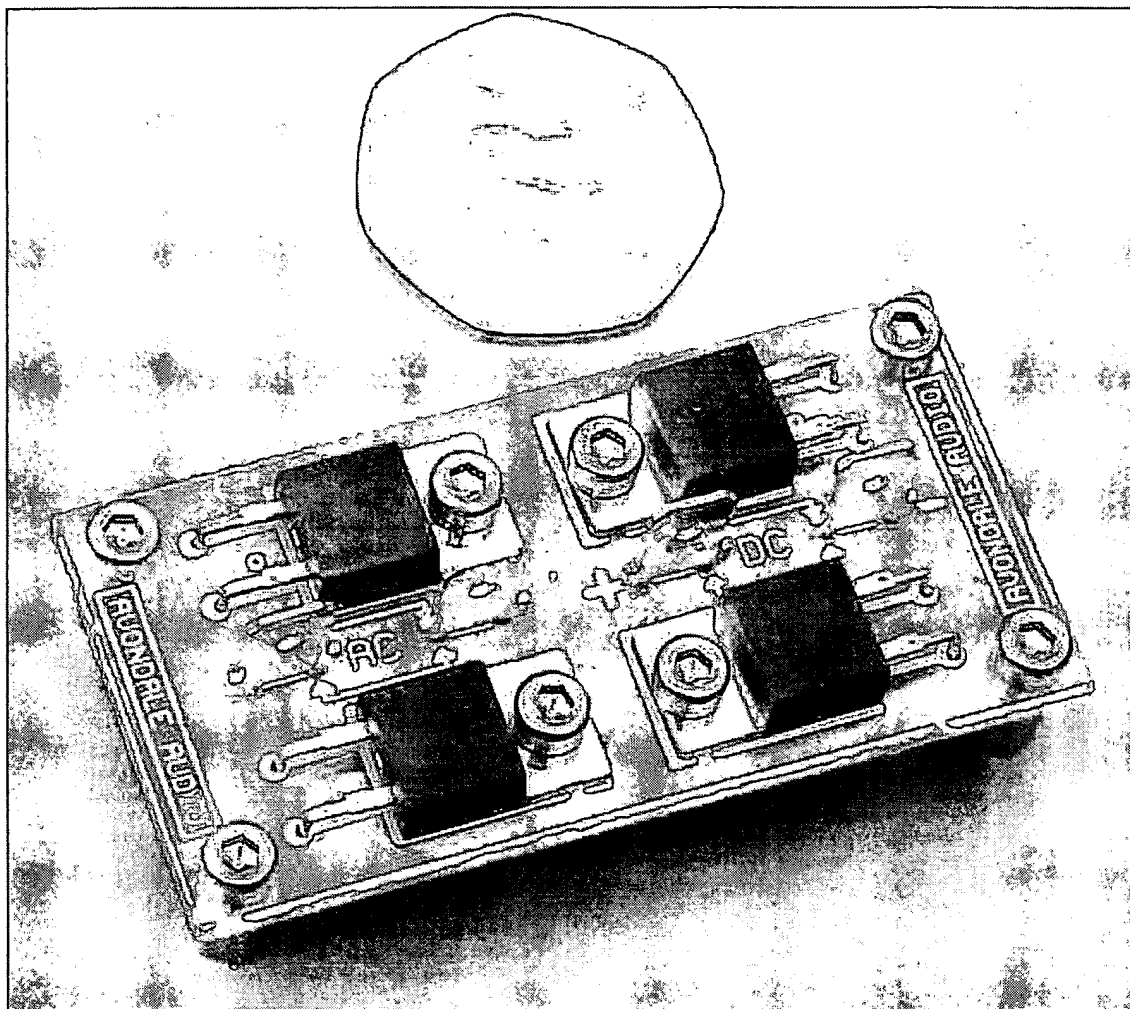
**A Snaps unit fitted with a pair of TPR regulators and re-capped with a Philips
15,000uF 114 series**

Converted in our own workshop - Inclusive Price: £146.00 (3 day turnaround)

****Don't just take our word for it!! - let YOUR EARS decide -
click here****

******.....all the 'electronic' quality has disappeared, leaving just the music" - BR Edinburgh***

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FWB1 - Schottky Full Wave Bridge Rectifier

A very quick amplifier upgrade indeed

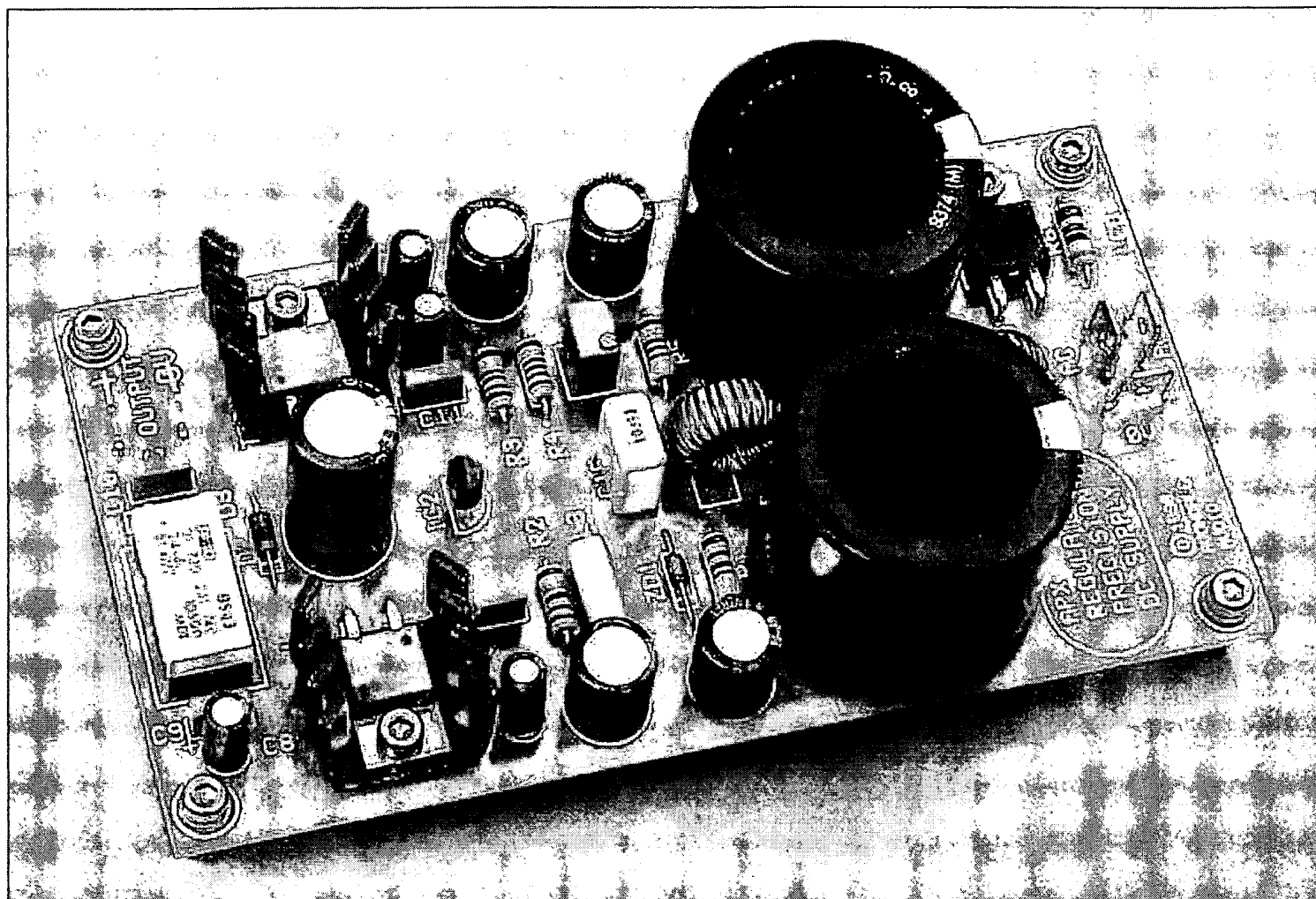
Comprises 4 x 20A @ 200V Dual Schottky Diodes, with non - ferrous fixings - overall size 68mm X 33mm

Drop one into your power amplifier or pre-amp for an instant upgrade. All 'push on' connectors.

Ready built Price: £22.00

****".....and I had no idea that such pleasure lurked within my Naim". DL Stoke on Trent*

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The All New Dual Regulated **APX** Pre-Amp Power Supply Module

Developed over many years to be both technically and sonically superior to anything on sale at present. The pre-regulator system reduces line noise, lowers impedance and provides a more linear performance. Everything is on the PCB with the exception of the transformer. Supply capacitors, rectifier, pre-regulator, final regulator assembly and even a resistor for an LED, are all included on the module. Size: 135mm X 75mm. Simply add a suitable transformer (ours come with 'push on' connectors already fitted) and you have a power supply ready to do justice to your Naim pre-amp.

Output is user adjustable between +12V and +32V depending on transformer secondaries.

Linear Technology LT317 or LT1086 regulators (your choice) and our optimised, non -ferrous construction

May be built up in any number to form a true 'State of the Art' Pre-Amp Power Unit and **NO SOLDERING**

In measurement and listening tests, the APX totally outshines both the Hi-Cap and the SuperCap

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Introductory Price: £87.00 ready built and tested.

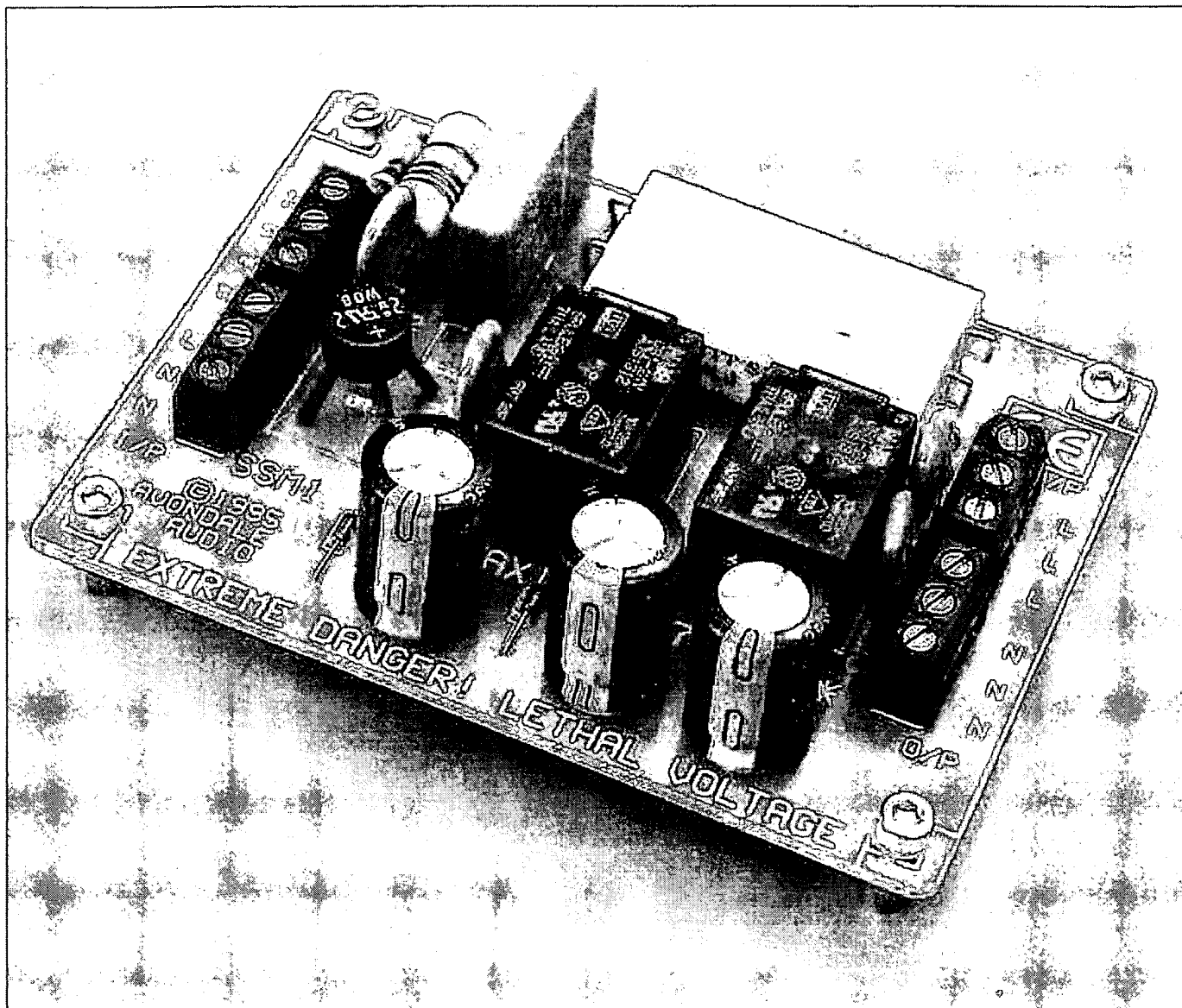
Credit Card Order ? See bottom of page

****We enjoy solving YOUR audio problems, that's what we're here for****

Our Policy on Ferrous Materials:

In the light of evidence that steel components may have adverse effects on sound quality and, following our own investigation paths, common sense dictates we avoid the use of ferrous materials in our products wherever possible

*****".....had me up all night listening to my CD collection all over again" CG Edinburgh***



The SSM1 - Mains Supply Soft Start Module

Fully Automatic Timing Sequence - No more dimming lights, pops, clicks or blown fuses...!!

Use in line or with a low current switch to operate - it will handle up to 1KW

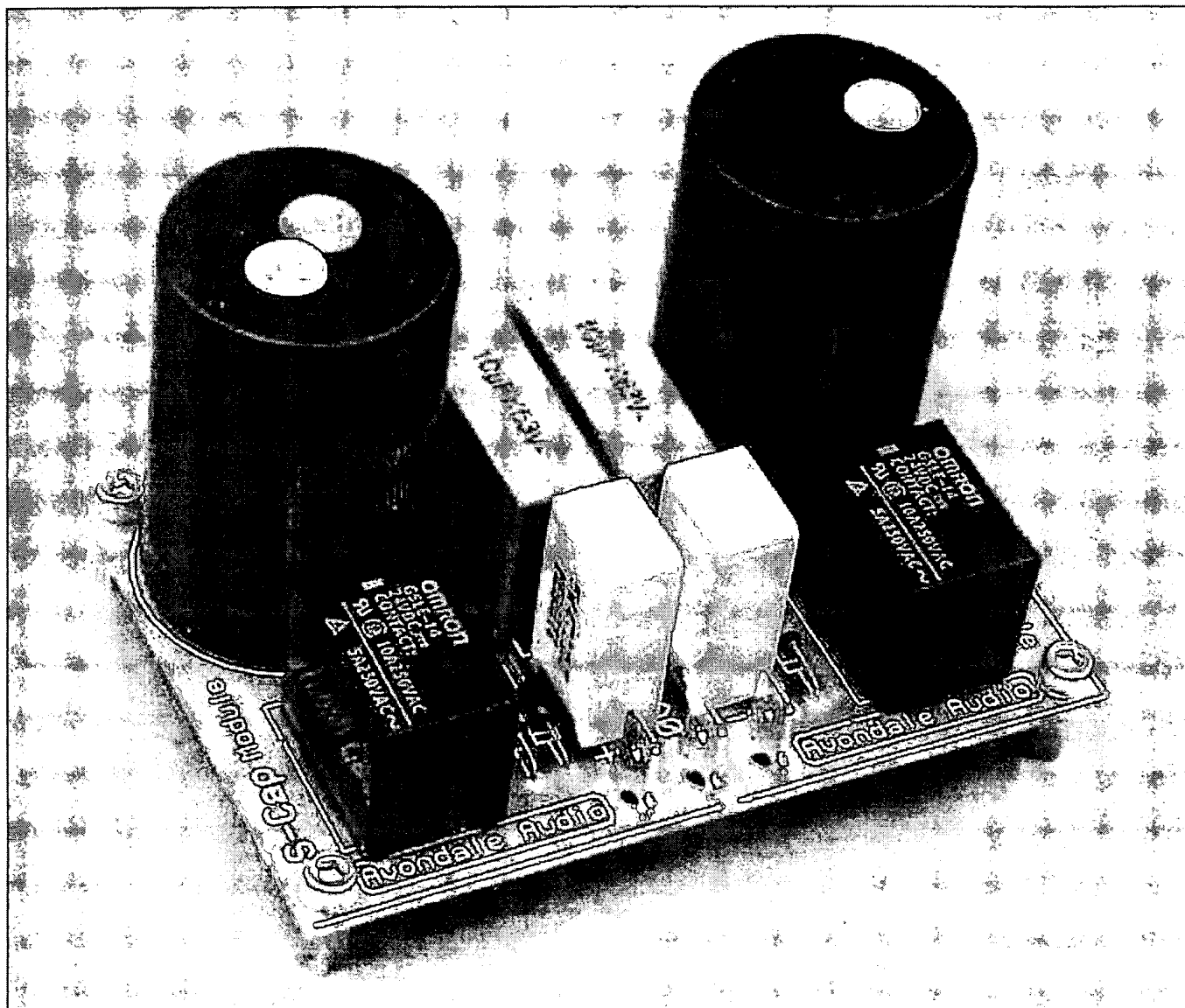
Size: 97mm X 72mm

Plus, you've guessed it - NO SOLDERING

Ready built Price: £47.00.... or as a bare PCB with Inventory & Buiding Guide:£7.00

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**** "The converted 160 is absolutely excellent" RB Thorpe Bay**



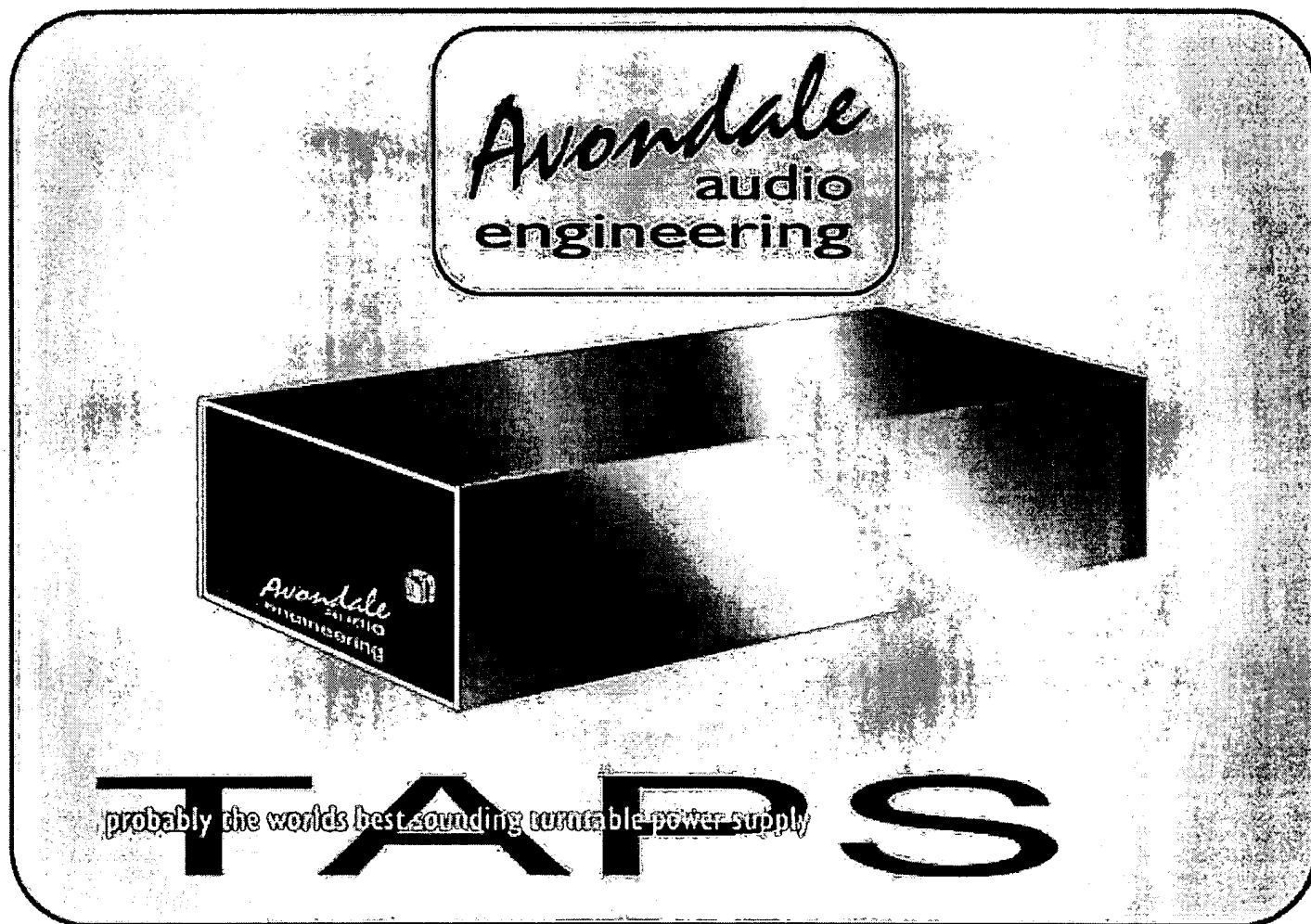
S-Cap - Auxiliary Capacitor unit for NAP250 & NAP135

Automatically sequenced in operation, adds a substantial reservoir of capacitance after the regulators for a tighter, more tuneful presentation with improved lower bass performance. One needed per channel.

Ready built Price: £46.00

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****"My dealer even said that he'd never heard a Naim system sound as good" AB Epsom*



The TAPS - Best selling Turntable Power Supply

Suitable for all turntables with the Philips MB10/MB12 synchronous motor and easily connected in minutes.

Comes with connecting lead and simple installation instructions - Now with a lifetime Guarantee!!

Supplied on a 'Sale or Return' no quibble basis. Try one without risk.

Still the best Value for Money turntable supply available at £242 inc UK delivery

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***** **PLEASE NOTE: The TAPS is single speed - 33.3RPM - only** *****

Put off by those greasy rubber knobs..??

Fit a pair of custom made heavyweight anodised aluminium replacements - Price £18 per pair

Hexagon grub screw fitting with key supplied



Credit Card Order ? See bottom of page

****How do I get started.?? It's easy - we show you****

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****** "What a doddle to assemble. I'm amazed at my abilities". MH Chester***

Our Returns Policy:

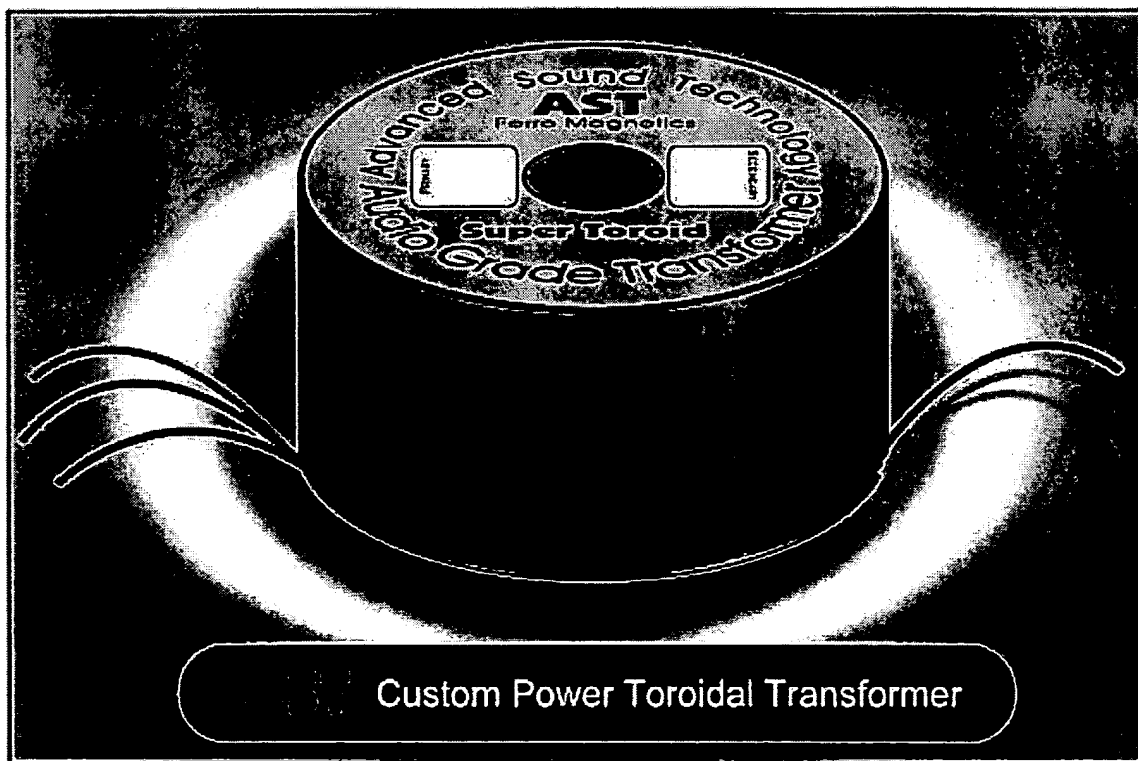
All our "off the shelf" products come with a no quibble, money back guarantee. If you find that for any reason, the item is not for you - then return it in the condition it was supplied for a full refund - it couldn't be any simpler.

The Best Audio Transformers in the World..?? - Our customers think so

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Last but not least - the Naim tuning manual will shortly be available as a *free download*

Stuffed full of diagrams, illustrations and 'know how' based on 20+ years of experience in upgrading Naim Equipment

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(Manufacturers titles, descriptions, product names etc. are used herein for reference purposes only and do not imply endorsement by them)

***** Original testimonials available for inspection at our offices:***

**Avondale Audio The Hollies Avondale Road Chesterfield Derbyshire S40
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